The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1. (currently amended) A microfluidic reactor for trapping one or more particles of predetermined nominal size or range of sizes, comprising:
 - a flow inlet;
 - a transparent capillary for providing an in-situ zone for analysis; and
- a porous filter integrated with the transparent capillary, the filter having a plurality of smaller eapillaries capillary tubes each having internal cross-sectional dimensions smaller than the nominal size or range of sizes of the particles and arranged so that said smaller eapillaries capillary tubes trap the particles in the analysis zone while a fluid flows from the flow inlet through the analysis zone and the filter.
- 2. **(original)** An apparatus as claimed in claim 1 wherein the filter extends laterally across the analysis zone.
- 3. (original) An apparatus as claimed in claim 1 wherein the flow inlet defines a flow axis and the filter intersects the flow axis so as to form a porous reaction chamber.
- 4. (previously presented) An apparatus as claimed in claim 3, wherein the holes of the porous reaction chamber are substantially hexagonal.
- 5. (canceled)
- 6. (currently amended) An apparatus as claimed in claim 1 wherein the plurality of smaller eapillaries capillary tubes are substantially parallel.
- 7. (previously presented) An apparatus as claimed in claim 1 wherein the transparent capillary comprises at least one rectangular tube to form a planar surface.

SERIAL NO. 10/809956
FILED: MARCH 26, 2004

8. (original) An apparatus as claimed in claim 1, wherein the transparent capillary is

made from glass.

9. (original) An apparatus as claimed in claim 1, wherein the transparent capillary is

made from a polymer.

10. (original) An apparatus as claimed in claim 1, wherein the transparent capillary is

coated with a solvent resistance.

11. (canceled)

12. (previously presented) An apparatus as claimed in claim 1, wherein the smallest

dimension of the transparent capillary is smaller than twice the smallest dimension of the

particles being trapped.

13. (original) An apparatus as claimed in claim 1, further comprising a manipulation

system for moving more than one microfluidic reactor in a high throughput bio-assay

operation.

14. (currently amended) A microfluidic reactor for trapping one or more particles of

predetermined nominal size or range of sizes, comprising:

an optical detector;

a flow inlet;

a transparent capillary for providing an in-situ detection zone wherein the

detection zone is arranged so as substantially to correspond in shape to the optical

detector; and

a porous filter integrated with the transparent capillary, the filter having a

plurality of smaller capillaries capillary tubes each having internal cross-sectional

dimensions smaller than the nominal size or range of sizes of the particles and arranged

3

so that said smaller <u>eapillaries</u> <u>capillary tubes</u> trap the particles in the analysis zone while a fluid flows from the flow inlet through the analysis zone and the filter.

15. (canceled)

- 16. (original) The reactor of claim 14, wherein the optical detector comprises a charge-coupled device for detecting light coming from the reaction in the detection zone.
- 17. (withdrawn) A method for trapping one or more particles of predetermined nominal size or range of sizes, comprising the steps of:

providing a flow inlet;

providing an in-situ transparent analysis zone;

integrating a porous filter with the in-situ transparent analysis zone, the filter having a plurality of holes defined therein, the holes being smaller than the nominal size or range of sizes;

flowing a fluid from the flow inlet through the analysis zone; and trapping the particles in the analysis zone while the fluid flows through filter.

- 18. (withdrawn) The method of claim 17, wherein the flowing step comprises reacting the fluid having an analyte with a probe immobilized on a plurality of particles.
- 19. (withdrawn) The method of claim 17, wherein the flowing step comprises flowing a fluid of whole blood cells.
- 20. (withdrawn) The method of claim 18 further comprising scanning the trapped particles for a visible result of the reaction in the detection zone.
- 21. (previously presented) An apparatus as claimed in claim 1 wherein the porous filter comprises a microstructured fiber.

, SERIAL NO. 10/809956 FILED: MARCH 26, 2004

22. (**previously presented**) An apparatus as claimed in claim 1 wherein the porous filter is fused to the interior walls of the transparent capillary.

23. (previously presented) An apparatus as claimed in claim 12 wherein the transparent capillary is dimensioned as to form a monolayer of trapped particles wherein the trapped particles are aligned in a serial fashion.